

WHAT IS CLAIMED IS:

1. An isolated nucleic acid molecule selected from the group consisting of:
- 5 a) the nucleic acid molecule as set forth in any of SEQ ID NOS: 1, 2, and 3;
- b) a nucleic acid molecule encoding the polypeptide of any of SEQ ID NOS: 4, 5, and 6;
- c) biologically active fragments of SEQ ID
10 NO:4;
- d) an allelic variant or splice variant of any of (a) or (b);
- e) a nucleic acid molecule of the DNA vector insert in ATCC Deposit No. 207158;
- 15 f) a nucleic acid molecule of the DNA vector insert in ATCC Deposit No. 207159;
- g) a nucleic acid molecule encoding a polypeptide having one to fifty conservative amino acid substitutions as compared with the polypeptide of SEQ
20 ID NO:4, wherein the polypeptide encoded by said nucleic acid molecule is biologically active; and
- h) a nucleic acid molecule that is the complement of any of (a)-(g) above.
- 25 2. A nucleic acid molecule that is SEQ ID NO:1.
- 30 3. A nucleic acid molecule encoding the polypeptide of SEQ ID NO:4.
- 35 4. A nucleic acid molecule encoding the biologically active polypeptide fragment of claim 13.
5. An expression vector comprising the nucleic acid molecule of Claim 1.

6. A host cell comprising the expression vector of Claim 5.

5 7. The host cell of Claim 6 which is a eukaryotic cell.

8. The host cell of Claim 6 which is a prokaryotic cell.

10 9. A process for producing a beta secretase polypeptide comprising culturing the host cell of Claim 6 in suitable culture medium and isolating the polypeptide from the culture.

15 10. A polypeptide produced by the process of Claim 9.

20 11. An isolated polypeptide selected from the group consisting of:

a) the polypeptide of any of SEQ ID NOS: 4, 5, and 6;

b) a biologically active fragment of any of SEQ ID NOS. 4, 5, 6;

25 c) a biologically active polypeptide having one to fifty conservative amino acid changes as compared with the polypeptide of SEQ ID NO:4;

d) the polypeptide encoded by the DNA vector insert of ATCC Deposit Nos. 207158 and 207159; and

30 e) a polypeptide that is an allelic variant or splice variant of (a).

12. An isolated polypeptide encoded by the nucleic acid molecule of Claim 1.

*Sub
A'*

Sub 34 > 13. An isolated polypeptide having the amino acid sequence of SEQ ID NO:4.

Sub A2

5 14. An isolated beta secretase polypeptide fragment of SEQ ID NO:4 selected from the group consisting of: amino acids 45-501; amino acids 46-501; amino acids 46-460; amino acids 45-460; amino acids 1-460; amino acids 93-292; amino acids 93-293; amino acids 91-295; amino acids 90-295; amino acids 90-300; 10 amino acids 62-420; amino acids 1-420; amino acids 62-460; amino acids 90-460; amino acids 62-501; amino acids 62-460; amino acids 90-293; amino acids 90-300; amino acids 1-420; amino acids 46-420; amino acids 62-420; amino acids 73-420; amino acids 83-420; amino 15 acids 90-420; amino acids 62-417; amino acids 73-417; amino acids 83-417; amino acids 90-417; amino acids 62-410; amino acids 73-410; amino acids 83-410; amino acids 90-410; amino acids 62-402; amino acids 73-402; amino acids 83-402; and amino acids 90-402.

20 *Sub 34* > 15. An antibody or fragment thereof specifically binding the polypeptide of Claim 10.

25 16. The antibody of Claim 15 that is a monoclonal antibody.

30 17. A composition comprising the polypeptide of Claim 10 and a pharmaceutically acceptable formulation agent.

18. A polypeptide comprising a derivative of the polypeptide of Claim 11.

35 19. A fusion polypeptide comprising the polypeptide of Claim 11 fused to a heterologous amino acid sequence.

20. The fusion polypeptide of Claim 18
wherein the heterologous amino acid sequence is an IgG
constant domain or fragment thereof.

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21. A method of modulating levels of beta
secretase polypeptide in a mammal comprising
administering to the animal the nucleic acid molecule
of Claim 1.